

**ABSTRACT OF THE DISCLOSURE**

A system and method for the analysis of AFM data is provided. The system and method can be used in conjunction with an atomic force microscopy (AFM) system including a cantilever with a tip used to analyze a sample, the AFM outputting an AFM data file. An exemplary embodiment of the invention includes a computer readable medium storing computer readable program code for causing a computer to receive user input regarding an analysis to be performed and analysis parameters; parse the AFM data file based on the user input to obtain a deflection of the cantilever; determine an indentation depth of the tip into the sample based at least in part on the deflection; select a model of contact mechanics based on the user input; solve the selected model of contact mechanics based on the input analysis using the determined indentation depth; and determine a residual error.

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